Bio-COIR™ Treatment and Dispersal System
GMP #144
April 9, 2008

I. System Description

The Bio-COIR™ Treatment and Dispersal System for which this approval has been granted, consists of the key components described in general below and described in detail in Appendix I and II. Except where a specific waiver to the *Sewage Handling and Disposal Regulations* (hereinafter the *Regulations*) has been granted, the site criteria, design, installation, inspection, and operation of the components comprising Bio-COIR™ Treatment System shall comply with the intent, objectives and requirements of the *Regulations.* The substitution of equivalent components is specifically prohibited.

A. Building Sewer. The building sewer used in Conjunction with a Bio-COIR Treatment System shall comply with Part IV, Article 2 of the *Regulations*.

B. Process Tank. The Bio-COIR process tank consists of an initial settling compartment followed by a pump compartment. The capacity of the settling compartment is shown in Table 1, column 2. The capacity of the pump compartment, which houses the Bio-COIR Recirculation Pumping System, is shown in Table 1, column 3. The process tank shall contain a solid baffle wall separating the first and second compartments. The flow through port between the two compartments shall be outfitted with a Zabel™ A300-8x18-VC gravity effluent filter or an effluent filter certified to ANSI/NSF Standard 46 and rated by the filter's manufacturer to accommodate the total daily flow as shown in Table 1 Two single compartment tanks in series are an acceptable alternative provided the minimum liquid capacities cited in Table 1 are maintained.

C. Secondary Treatment System. The Bio-COIR modules are made of pre-assembled fiberglass with UV-protected fiberglass 26" diameter lids (1 or 2 per module depending on treatment capacity). The treatment module contains an effluent distribution system including one to four helical spray nozzles, true union ball valve, and pressure gauge. The patented Bio-Coir media contained with the treatment module is composed of fibers that constitute 100% coir fiber from the husk of the coconut fruit. The high lignin content (45.84%) contained with these fibers results in slow degradation of the media.

Effluent is dosed from the pump compartment of the process tank through the spray nozzles onto the surface of the media. Dosing occurs in short frequent doses over a 24-hour period utilizing a timed dose control panel. Once sprayed, the effluent moves via gravity down through the media where treatment occurs through exposure to microorganisms attached to the media. After passing through the full depth of media, the effluent may be recirculated by gravity or pressure depending on site specific elevations encountered. Where there is sufficient fall to provide gravity flow splitting (See appendix 1, drawing 1), the recirculation device splits the flow and discharges 80% back into the settling compartment and 20% is discharged from the process tank for final disposal. In

periods of low/no incoming flow, 100% of the treated effluent can be recirculated to the settling compartment (Model ATS-GRD-100/80/20-N). When site elevations dictate, pressure recirculation is accomplished by substituting a patented device for the gravity flow splitting device (Model ATS-PRD-4/1) (See appendix I, drawing 2). The gravity recirculation device also comes in a model where recirculation is capped at 80% which may be used if periods of little flow are not anticipated (Model ATS-GRD-4/1).

D. Pretreatment Devices. Single or multiple pretreatment devices may be used in accordance with Table 1 to treat various sized residential flows. When more than one unit is used, each unit is installed with effluent flow uniformly split between all modules. This is carried out by setting all modules to the same pressure (in psi) using the supplied ball valves and pressure gauges. The pump sizing requirements for multiple modules is dictated by elevation from the pump to the modules and by maintaining a minimum of 3.2 gallons per nozzle. The system designer shall verify the pump performance relative to the site and total number of nozzles.

Table 1

Total Daily Flow (max gpd)	Minimum Settling Compartment Size (gal)[1]	Minimum Pump Compartment Size (gal)[1]	Number of Bio-COIR Modules	Quanics Pump**
200	750	200	One 3' Module	P-SE-13T
400	750	350	One 4' Module	P-SE-13T
500*	1000*	500	One 8' Module*	P-SE-13T
650	1000	500	One 6' Module	P-SE-13T
750*	1500*	750*	One 8' Module + One 6' Module*	P-SE-41T
1000	1000	500	One 8' Module	P-SE-13T
1000*	2000*	1000*	Two 8' Modules*	P-SE-41T

[1] Larger tank sizes may be used
* NSF certified models
** if distance between module(s) and tank exceeds 50 ft, or elevation change from low level pump cutoff to inlet of module exceeds 10 ft, consult Table 2 for the appropriate pump.

Table 2

Pump selected from column 5 of Table 1	Distance between tank and module 51-200 ft and/or elevation change 11-30 ft use pump	Distance between tank and module 201-800 ft and/or elevation change 31-80 ft use pump*
P-SE-13T	P-SE-12T	P-TE-20 plus
P-SE-41T	P-SE-10T	P-TE-50-230-1.5**

* if distance between module(s) and tank exceeds 800 ft, or elevation change from low level pump cutoff to inlet of module exceeds 80 ft, consult Quanics for the appropriate pump (engineered system).
** this is a special order pump.

E. Conveyance System. The effluent conveyance components are designed to move effluent from the BioCOIR™ Treatment System to an absorption area. The three modes of conveyance are:

1. Gravity,
2. Pumping to gravity distribution, and
3. Pumping to pressure distribution.

Effluent may be discharged to the dispersal area by:

1. Gravity in accordance with 12 VAC 5-610-870, or
2. By means of a discharge pump in a proprietary pre-engineered pump basin listed in Appendix II, or
3. Using an Quanics approved discharge tank where the pump characteristics, drawdown and discharge rates are specified by Quanics.

F. Absorption Area. The absorption area consists of the infiltrative surface where effluent is applied and the native or fill soil between the trenches or drip tubing. Any method of effluent application may be utilized provided it is approved by the Department and authorized by the manufacturer.

II. Waivers

A. Scope. The following waivers to the *Regulations* are granted for facilities generating residential strength wastewater that have a design flow not exceeding 1,000 gallons per day.

For the purposes of this policy, “Residential strength wastewater" means sewage generated by residential uses, not containing industrial influent or storm water and having no other toxic, hazardous, or constituents not routinely found in residential wastewater flows, or as certified by a professional engineer. Certification by a professional engineer shall consider the wastewater strength as well as peak and average daily flows. The results of the analysis submitted with the permit application shall include a finding of the equivalent number of bedrooms on which to base the design.

B. Trench width. 12 VAC 5-610-950 E.2, limits absorption trenches to widths between 18 inches and 36 inches. This section is waived to allow the use of absorption pads. For the purposes of this policy, a pad is defined as an absorption area wider than 3 feet but not longer than 100 feet. Absorption pads may be used under the following conditions:

1. A system may contain one or more pads.
2. The combined area of all pads in a system may not exceed 1,200 square feet.
3. Pads and trenches may not be used together in a single system.
4. Pads shall be limited to sites with slopes of 10% or less.

C. Minimum Installation Depth. 12 VAC 5-610-596 C.1, which limits the installation of trenches shallower than 12 inches to Texture Group I and II soils is waived for slopes up to 15%[1]. The infiltrative surface (i.e., the bottom of the pad or trench) shall be installed at grade or deeper on naturally occurring undisturbed soil. No fill material shall occur beneath the infiltrative surface. On sloping sites the installation depth shall be measured on the downhill side of the trench or pad.

D. Minimum Cross Section Dimensions 12 VAC 5-610-950.E.1 is waived. This section establishes how sidewall depth is measured and requires increases in the installation depth of trenches as the slope of the site increases. By waiving §950.E.1 absorption systems designed under this policy may be installed at grade even on steeper slopes. No distinction is made between pads and trenches. Section 12 VAC 5-610-950.F, which increases the lateral separation distance between trenches as the slope of the site increases, is not waived.

Designers are encouraged to use a conservative approach when designing shallow placed systems on sloping sites to prevent effluent from breaking out at the contact between the original soil surface and the fill interface.

E. Loading rates. Table 5.4 of the *Regulations* and 12 VAC 5-610-950 D, which establish loading rates for subsurface soil absorption systems, are waived. Systems designed pursuant to this policy shall use Table 4 contained herein to determine the maximum acceptable loading rates. Designers are authorized to use lower loading rates.

F. Pump system designs.

1. Pumps Integral to Treatment Systems. Pumps integral to the treatment system are pumps that move sewage or effluent from the house or pretreatment system to the treatment system and/or pumps that move effluent within the treatment system. The *Regulations* do not specifically address pumps used for purposes other than conveying effluent to a dispersal system. 12 VAC 5-610-880 is waived in its entirety for pumps, pump chambers, and appurtenances integral to treatment systems.

[1] This means that for slopes up to 15% there are no soil texture group limitations for shallow placed systems.

2. Conveyance Pumps. The pump requirements contained in 12 VAC 5-610-880 subsections A.1, B.1, B.6, and B.7 are waived. Pump systems designed in accordance with these sections of the *Regulations* are not appropriate for systems dispersing treated effluent to a reduced size absorption area. Therefore, the use of the pump design criteria in subsections B.1, B.6 and B.7 in the *Regulations* is expressly prohibited except when the sizing criteria in Table 5.4 of the *Regulations* are used[2]. Consequently, only pump systems recommended by the manufacturer and approved by the Division of Onsite Sewage and Water Services (herein after, the Division) may be used in accordance with this GMP.

3. Division approved pump systems appropriate for use with this manufacturer's system are either described in this policy or may posted as an addendum to this policy on the Division's website.

G. Separation distances to water table. The separation distances between the infiltrative surface of a soil absorption system and a water table as shown in Table 4.3 of the *Regulations* are waived in lieu of Table 3 of this policy.

Table 3

Separation Distance between Infiltrative Surface of Soil Absorption System and Water Table	
Percolation Rate	Separation Distance
1-25	6 inches
26-37	8 inches
38-49	10 inches
50-120	12 inches

H. Separation distance to impervious strata for shallow placed systems. An impervious stratum is defined as a soil feature that has a measured or estimated percolation rate in excess of 120 minutes per inch. For the purposes of this policy impervious strata include but are not limited to bedrock, pans, restrictions, or shrink-swell soil. The separation distance to these features for a shallow placed system is shown in Table 4.3 of the *Regulations*, with the exception of the separation distance to water table. Table 3 of this policy provides the minimum separation distance to a water table.

The separation distance to an impervious strata may be reduced from 18 inches to a distance not less than 12 inches below the trench bottom when a professional engineer certifies in writing that they have evaluated the hydraulic capacity of the site to disperse wastewater and that in their professional opinion, water mounding will not encroach on the separation distance required in Table 3 above[3].

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[2] The requirement in subsection A.1 for a velocity of two feet per second to achieve scouring, while not necessarily needed for treated wastewater, may be used at the discretion of the designer.

[3] This requirement is for a written certification, signed, sealed and dated by a professional engineer licensed in Virginia. This requirement does not mandate the submission of calculations used to make this determination.

I. Plans and Specifications. When plans conform to requirements of GMP #125, the requirement for formal plans and specification required in 12 VAC 5-610-250.C is waived. Typical treatment system drawings and specifications are shown in Appendices I and II respectively. When used in conjunction with a permit sketch, site specific specifications, and manufacturer installation criteria, these documents will normally be sufficient to assure a system can be properly installed. In some instances where a complex system is encountered, formal plans and specifications may be required. This determination is left to the discretion of the District Health Department.

GMP #125 is intended to provide additional guidance and consistency when a professional engineer is required. Nothing contained herein is intended to contradict GMP #125. Whether or not to require a professional engineer for timed dosing has been a point of confusion. Timed dosing to a gravity flow distribution box does not necessarily require a design prepared by a professional engineer when the conditions described in GMP #125 (and briefly described below) are met.

The design of pumping systems for the purpose of transporting the wastewater from the treatment device described by this policy, to the location of the soil based treatment system, does not necessarily require a design by a professional engineer provided:

1. The design involves elevations that are generally level or constantly ascending, and
2. The discharge end is open and not pressurized, and
3. The design does not involve pumping downhill, and
4. The design does not exceed 50 feet of static head and/or 500 feet of force main length.

Note: When timed dosing or enhanced flow is applied to a treatment device that is located directly above an absorption pad, the designer may assume that the effluent is delivered in the same manner to the pad that it was applied to the treatment device.

J. The depth of gravel specified in 12 VAC 5-610-930.E is not waived (nor has it ever been waived). All trenches and pads, which use aggregate, shall be designed using 6 inches of gravel (or other approved aggregate) under gravity percolation lines and 2 inches over the line. For LPD (low pressure distribution) systems 8.5” of aggregate is required under the pipe and 2” over the pipe.

III. Siting Criteria

This policy authorizes the use of sites that meets one of the following classifications:

1. Any site that fully complies with the criteria contained in the *Regulations*, including, but not limited to, absorption area, sizing percolation rate, landscape position, stand-off distances, and set-back distances. This includes sites that comply with the *Regulations*, whether or not secondary effluent is required.

2. Any site that does not fully comply with the criteria contained in the *Regulations* where a waiver to the non-conforming condition or conditions has been granted in this policy.
3. Repair permits that fully comply with this policy are considered to meet the intent of 12 VAC 5-610-280 C.2. Repair permits that do not fully comply with the siting criteria contained in this policy or the *Regulations* must use Table 5.4 in the *Regulations* in order to comply with Section 280 C.2.

IV. Design Criteria

All portions of the system shall be designed to provide wastewater treatment and disposal, which is equal or superior to that obtained with a conventional gravity drainfield system. In general, the system must provide primary treatment, followed by additional wastewater treatment to produce an average BOD_5 of 10 mg/l, and effluent distribution and application to soils capable of providing sufficient additional treatment to render the wastewater harmless to humans and the environment.

A. Absorption Area Design. The absorption area may consist of any dispersal method approved by the department and authorized for use by the manufacturer. Should a conflict exist between a manufacturer's design criteria and the *Regulations* or this policy, the Department's criteria shall take precedent.

The absorption area determined to be necessary under this policy may be achieved by use of either an absorption pad or absorption trenches, provided:

1. The minimum standoff distance to water table, or other limiting factor, is achieved under the entire absorption area. This assures that at least the minimum requirement for suitable soil exists between all parts of the infiltrative surface and the underlying limiting factor.
2. The absorption area, (either pads or trenches) is installed on contour. When a pad system is designed the longest dimension of the pad shall be along the contour. Contour means that the longitudinal axis of the pad follows the contour of the site within 4 inches (i.e., +/-2"). Pads are considered marginally sufficient to achieve hydraulic dispersal of the effluent. Every effort *should* be made to minimize the linear loading rate, particularly when using a pad design.
3. When a pad is utilized, the bottom pad area shall be installed level while maintaining at least the minimum required separation distances to all soil limiting factors.
4. No portion of the pad bottom area may be installed on fill material.
5. The system shall be designed to provide equal flow, within 10 percent, throughout all portions of the absorption area. Distribution of effluent by gravity or pressure dosing (before or after the treatment system) is acceptable.
6. When designing a drip dispersal system the designer may use the loading rate shown for either the two or the three foot wide trenches shown in Table 4. To determine the area needed, divide the daily peak wastewater flow in gallons by the loading rate (GPD/sq. ft.) selected from Table 4. Multiply this result by three

to determine minimum footprint area in square feet. The drip dispersal design guidance in GMP #107 applies to the design of the drip field. Where slopes and/or restrictive horizons are a consideration, the Absorption Area Increase Table in GMP #107 shall be followed.

7. When a pad is proposed for use within 20' up slope or down slope from another proposed or actual absorption system, the Department shall require a professional engineer to certify that the upslope system will not adversely impact the down slope system.

B. Area Requirements and Calculations. The absorption area shall be sized in accordance with Table 4 of this document. A larger area may be specified by the designer.

1. The minimum absorption area shall be 320 square feet.

2. No additional area reduction shall be permitted for the use of water saving fixtures.

C. Distribution.

1. All absorption trenches shall use parallel distribution (i.e., either a distribution box or pressure distribution).

2. Distribution to the absorption area may be accomplished by gravity flow to an underlying pad or a distribution box, or under positive pressure to a manifold. In any case, effluent shall be applied proportionally to the absorption area as described in Part IV A (Field Design) above.

D. Depth. The infiltrative surface that comprises the absorption area may be installed at grade. On sloping sites this shall be measured on the downhill side of the installation (i.e., no fill material may be placed below the absorption system).

E. Cover material shall be provided from the top edge of the absorption system horizontally in all directions to existing grade and shall cover the top and side of the absorption area, which may be exposed during construction. The designer shall include sufficient cover in the system design to prevent freezing. In no case shall the depth of cover be less than four inches (note: in some areas of the state this may be insufficient to provide frost protection). The finished slope of the cover material shall not exceed 1:4 (rise:run) and a slope of 1:6 or shallower is preferred.

V. Installation

A. No contractor shall install a system in Virginia authorized under this policy unless they are first trained and certified by the manufacturer as having passed their minimum training qualifications. The manufacturer shall maintain a current list of qualified

installers and shall make the list available to the Virginia Department of Health (herein after VDH) through its website or by other appropriate means.

B. The manufacturer shall ensure that only certified and trained contractors install their proprietary systems according to manufacturer approved procedures.

C. VDH may approve a properly installed system if the only defect is that the contractor who installed it was not certified by the manufacturer. If a manufacturer fails to adequately enforce this provision, such failure may be grounds to terminate the manufacturer's authorization pursuant to this policy.

D. The manufacturer's recommendations shall be followed for system startup.

E. All mechanical components, pumps, pump cycling, filters, systems must be demonstrated to be fully operational in accordance with their design.

Table 4

Hydraulic Loading Rates for Absorption Systems Designed Under this Policy				
Percolation Rate (Minutes/Inch)	**Gallons Per Day Per Square Foot of Horizontal Surface**			
		Trenches		
	Pads	**1.5 wide**	**2.0 wide**	**3.0 wide**
20 or less	1.66	2.78	2.5	2.22
25	1.33	2.22	2.00	1.78
30	1.11	1.85	1.66	1.48
35	0.95	1.59	1.43	1.27
40	0.83	1.39	1.25	1.11
45	0.74	1.23	1.11	0.99
50	0.67	1.11	1.00	0.89
55	0.61	1.01	0.91	0.81
60	0.55	0.93	0.83	0.74
65	0.51	0.85	0.77	0.68
70	0.48	0.80	0.72	0.64
75	0.44	0.74	0.67	0.59
80	0.42	0.69	0.63	0.56
85	0.39	0.65	0.59	0.52
90	0.37	0.62	0.56	0.49
95	0.35	0.58	0.53	0.47
100	0.33	0.56	0.50	0.44
105	0.32	0.53	0.48	0.42
110	0.30	0.51	0.45	0.40
115	0.29	0.48	0.43	0.39
120	0.28	0.46	0.42	0.37

Note: For drip dispersal sizing requirements see item A.6 under Section IV Field Design (above).

VI. Operation and Maintenance

Routine maintenance is essential for proper operation of the system. Failure to maintain a system ***will*** result in increased public health and environmental risks. After July 1, 2009 all systems permitted pursuant to this policy will be required to have operation and maintenance provided by a licensed wastewater system operator for the life of their system. Prior to July 1, 2009, VDH strongly urges all system owners to assure operation and maintenance is provided in accordance with the manufacturers recommendations.

All system owners shall be provided with written and oral instructions on the proper operation and maintenance of their system. Providing system owners with updates, revisions and other changes to this section is the responsibility of the manufacturer. Copies of changes shall be submitted to the VDH on an informational basis. Nothing in this approval is intended to prevent or restrict the development of instructional materials for public use. No prior approval of such literature is required provided the literature contains no endorsements, approvals, or suggestions that VDH in any manner promotes the use of one system above any other.

VII. Responsibilities and Permitting Procedures

A. Permitting shall be done by the local health department based on a satisfactory site evaluation and review of plans and specifications prepared in accordance with all applicable state regulations and policies and any relevant local ordinances.[4] Systems permitted under this policy are Type III systems (see 12 VAC 5-610-250.C); however, the process for issuing permits under this policy shall be handled in the manner described for Type II systems (see 12 VAC 5-610-250.B).

B. The local health department shall attach a copy of this policy to all construction permits granted pursuant to this policy.

C. Construction permits (i.e., not operation permits) are valid for a period of 18 months. Upon successful completion of the provisional protocol, unused construction permits will be treated as conventional construction permits and may be renewed upon expiration. In the event that the system fails the provisional protocol, unused permits will not be renewed. Permits shall note the provisional or experimental nature of the system and that they cannot be converted to a certification letter. Upon successful completion of the provisional protocol, the holder of a valid provisional permit may convert the same to either a conventional construction permit or a certification letter.

D. Permits issued for the system authorized by this policy prior to the effective date of this policy shall continue to be valid until such time as the permit is installed or expires

[4] Either a Level 1 or a Level 2 review of work submitted by an AOSE/PE shall constitute compliance with state regulations and policies.

18 months after the date of issuance. Expired permits shall be reissued upon receipt of a proper application filed in accordance with the established requirements of VDH and shall conform with current policy to the greatest extent practical.

E. The manufacturer shall be responsible for providing up to six classes (up to 50 students each) during the first six months after this approval is granted and two classes annually thereafter. The training shall include a manual covering proper siting, sizing, construction, and installation and inspection processes for the system described in Section I. All training materials, the course syllabus and training locations shall be reviewed and approved by the Division prior to training occurring.

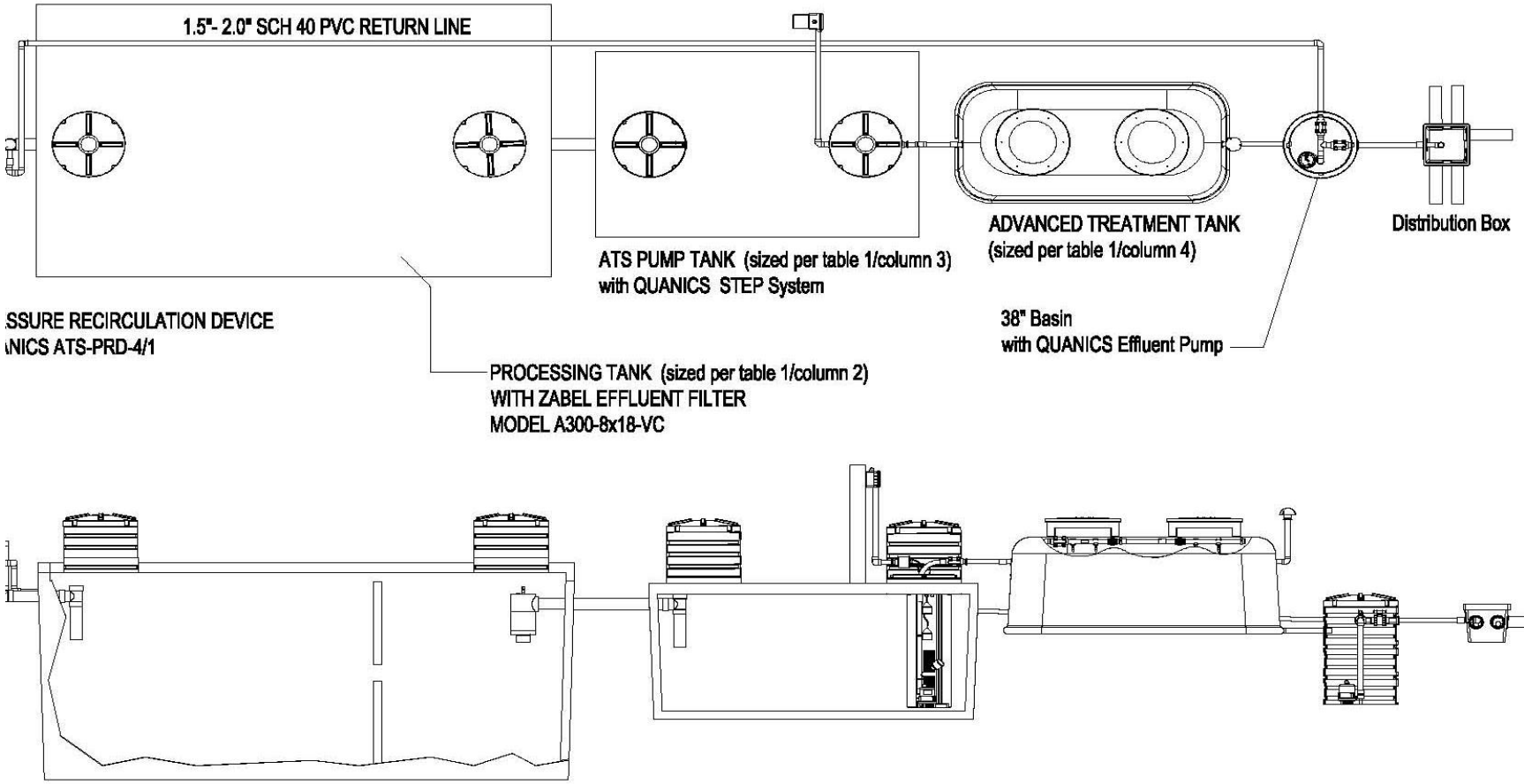
F. The manufacturer shall maintain an accurate and up-to-date web-based listing of authorized installers and approved process and pump tanks.

G. Should the system described in Section I fail to perform to the satisfaction of VDH during either the experimental or provisional evaluation periods, VDH may rescind or modify this approval. Prior to taking such action, VDH shall notify the manufacturer of the nature of the problem and of the action it intends to take. The actual status of the approval appears in Appendix III.

VIII. Monitoring

Monitoring is required for the duration of any experimental or provisional approval. Until such time as general approval is granted in writing, the manufacturer shall maintain a log of all systems installed. This log shall include the following minimum information: System location (by tax map, gpin, or permit number) owner's name, county, and soil conditions where the system was installed, and all associated physical, biological and chemical data if the system is one being monitored. This log shall be reported to to the Division of Onsite Sewage and Water Services on a quarterly basis and shall be provided by the 15th of the month following the end of the quarter. The log shall be a vailable to the Division within 5 business days upon request.

Appendix I
Bio-COIR™ Treatment and Dispersal System Drawings



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SCALE		NAME	DATE
	Drawn By	TNJ	05-15-07
GPD	Technical Approval	TP	05-15-07
1,000	Engineer Approval		

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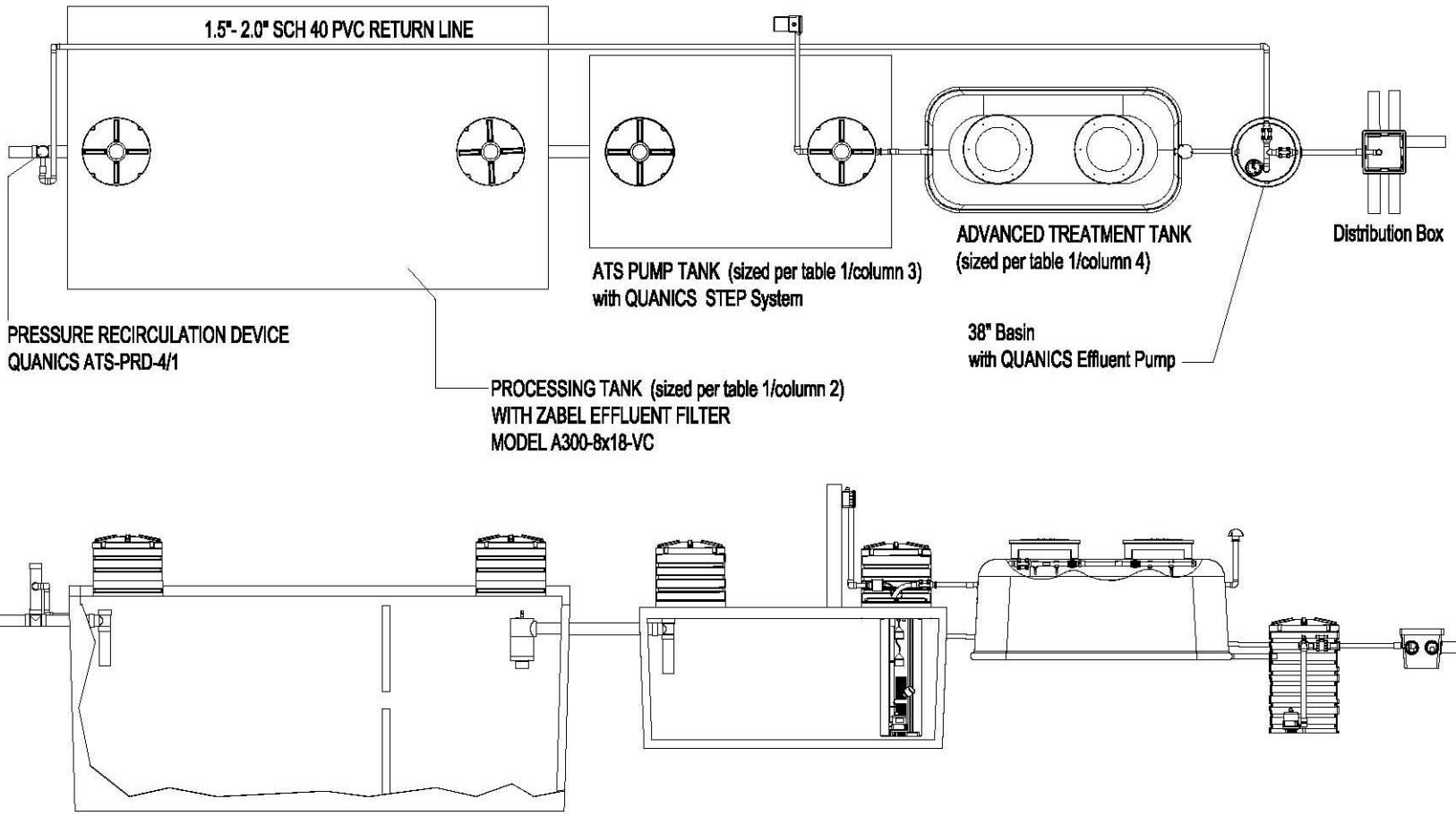
CONCEPTUAL SYSTEM LAYOUT - FINAL ARRANGEMENT MAY CHANGE DUE TO UNKNOWN OBSTACLES AND TERRAIN.

DRAWING NAME - Virgina GNP Submital, two tank and pressure recirculation
CUSTOMER/DEVELOPER - N/A
SITE LOCATION - N/A



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SCALE		NAME	DATE
	Drawn By	TNJ	05-15-07
GPD	Technical Approval	TP	05-15-07
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Appendix II
Bio-COIR™ Treatment and Dispersal System Components

Description	Model Number(s)
BioCoir™ Filter	ATS-BC-200, ATS-BC-400, ATS-BC-C500, ATS-BC-650, ATS-BC-C750, ATS-BC-1000, ATS-BC-C1000
Processing tank (sized per Table 1, column 2)	State approved concrete and fiberglass tanks of appropriate size, dual compartment
Effluent Filter	Zabel A300-8x18-VC or an effluent filter certified to ANSI/NSF Standard 46 and rated by the manufacturer to accommodate the total daily flow
Polyethylene riser(s) with lid	RB-R-22x6, RB-R-22x12, RB-R-22x38, RB-R-26x6, RB-R-26x12, RB-R-26x18, RB-R-26x38, with RB-L-22 or RB-L-26
Cast-in tank adaptor -or-	RB-CTA-22x6, RB-CTA-22x12, RB CTA-26x6, RB-CTA-26x12
Retrofit tank adaptor	RB-RTA-22x2, RB-RTA-26x2, RB-RTA-30
PVC riser(s) with lid (in place of Polyethylene risers)	RB-R-30x12, RB-R-30x24, RB-R-30x36, RB-R-30x48, RB-R-30x60, RB-R-30x72, RB-R-36x6, RB-R-36x24, RB-R-36x36, RB-R-36x48, RB-R-36x60, RB-R-36x72, with RB-R-COP -30 or RB-R-COP 36 on joints, also RB-L-30 or RB-L-36
Retrofit tank adaptor for PVC risers	RB-RTA-30 or RB-RTA-36
Pump Tank (sized per Table 1, column 3)	State approved concrete and fiberglass tanks of appropriate size, single compartment
Filtered pump vault (length proportional to depth of tank)	FPV-H36-4, FPV-H44-4, FPV-H50-4, FPV-H56x4, FPV-H62-4, FPV-H84-4, FPV-H102x4, FPV-H40-SC, FPV-H48-SC, FPV-H54-SC, FPV-H60-SC, FPV-H66-SC, FPV-H72-SC, FPV-I36-4
Fiberglass Pump vault adaptor ring	SS-FPV-AR
Optional Pressure Filter	PDS-PF-1.5/2.0, PDS-PF-1.5-AP, PDS-PF-2.0-AP
Submersible pump (per Table 1, col 5) -or-	P-SU-13T, P-SS-41T, P-SS-12T, P-SS-34T, P-SE-13T, P-SE-41T, P-SE-12T, P-SE-10T
Turbine pump (per Table 2, col 3)	P-TE-10, P-TE-20, P-TE-30, P-TE-50, P-TE-90, P-TE-10-PLUS, P-TE-20-PLUS, P-TE-30-PLUS, P-TE-50-230-1.5 or custom
Float Tree	AC-FT-1, AC-FT-2, AC-FT-3, AC-FT-4
Floats, Float switches	AC-PMS, AC-MFS, AC-VMS
Pump discharge	PDS-EDF-1.25(-D), PDS-EDF-1.5(-D), PDS-EDF-2.0(D), PDS-EDS-1.25(-D), PDS-EDS-1.5(-D), PDS-EDS-2.0(-D)
Wire harness	AC-WH-7S, AC-WH-12S, or equal
Grommets	PDS-GT-.50,1.00,1.25,1.5, PDS-GT-2.0,3.0, 4.0-35, 4.0-40
Disinfection Equipment	ATS-Cl, ATS-GUV-3, ATS-PUV-20, ATS-PUV-40
Drip Irrigation Management Systems	PDS-MS-1-AUT, PDS-MS-1.5-AUT, PDS-MS-2-AUT, PDS-MS-1-MAN, PDS-MS-1.5-MAN, PDS-MS-2-MAN,
Drip Irrigation tubing	PDS-DT-12, PDS-DT-12-PC, PDS-DT-24, PDS-DT-24-PC
Drip Irrigation accessories	PDS-SF-75, PDS-SF-100, PDS-SF-200, PDS-SF-

	RC-75/100/150/200, PDS-AVB, PDS-VB-100, PDS-CF-A, PDS-CF-C, PDS-CF-E, PDS-CF-IC, PDS-CF-T, PDS-LF-A, PDS-LF-C, PDS-LF-E, PDS-LF-T
LPP accessories	PDS-OS-100, PDS-OS-125/150, PDS-OS-200, PDS-SA-075, PDS-SA-1.0, PDS-SA-1.25, PDS-SA-1.50. PDS-SA-2.0
Distribution valves	PDS-DV-4-4-2 (AP), PDS-DV-4-4-3 (AP), PDS-DV-4-4-4 (AP), PDS-DV-$-6-5 (AP), PDS-DV-4-6-6 (AP), PDS-DV-6-4-2 (AP), PDS-DV-6-4-3 (AP), PDS-DV-6-4-4 (AP), PDS-DV-6-6-5 (AP), PDS-DV-6-6-6 (AP)
Distribution Boxes	GDS-DB-4D, GDS-DB-4L, GDS-DB-6L, GDS-DB-7L, GDS-DB-9L, DDS-SL-4.0
Junction/splice/plugger box	AC-JSP-3, AC-JSB-4, AC-JSB-5, AC-JSB-6, AC-JPB
Flow Saddle	ATS-GRD-SAD
Recirculation Device (pressure) -or-	ATS-PRD-4/1
Recirculation Devices (gravity)	ATS-GRD-4/1, ATS-GRD-50/50, ATS-GRD-80/20, ATS-GRD-100/50/50, ATS-GRD-100/50/50-N, ATS-GRD-100/80/20, ATS-GRD-100/80/20-N
Optional basin (polyethylene) with lid	RB-BAS-22x12, RB-BAS-22x38, RB-BAS-26x12, RB-BAS-26x18, RB-BAS-26x38, with RB-L-22 or RB-L-26
Optional basin (PVC) with lid	RB-BAS-30x12, RB-BAS-30x24, RB-BAS-30x36, RB-BAS-30x48, RB-BAS-30x60, RB-BAS-30x72, RB-BAS-36x6, RB-BAS-36x12, RB-BAS-36x24, RB-BAS-36x36, RB-BAS-36x48, RB-BAS-36x60, RB-BAS-36x72, with RB-R-COP -30 or RB-R-COP 36 on joints, also RB-L-30 or RB-L-36
Alarms	AC-A-I, AC-A-O, AC-A-PED, AC-A-PED-PMS
Control Panels	AC-A-I, AC-A-I-VRS, AC-A-I-WMS, AC-A-O, AC-A-O-AC, AC-A-O-VRS, AC-A-PED-PMS, AC-A-Ped-20-PMS, PDS-CNTR-IFS, PDS-CNTR-D-115V, AC-CP-S-S, AC-CP-S-C, AC-CP-S-C-T, AC-CP-S-C-T-IFS, AC-CP-D-C, AC-CP-D-C-T, AC-CP-D-C-T-IFS, or custom
Optional Flow Director / Flow diverter	GDS-Z300, GDS-Z300D
Dosing siphons	GDS-DS-3T, GDS-DS-4T
Optional equal flow distribution box	Zoeller tru-flo® floating d-box 173-0001, 173-0005, 173-0006, 173-0007

Appendix III

System Status				
	Texture Group			
	I	II	III	IV
AdvanTex®	Provisional	General	General	General
Bio-COIR™	Experimental	Experimental	Experimental	Experimental
Ecoflo®	General	General	General	Provisional
Eco-Pure®	Experimental	Experimental	Experimental	Experimental
Puraflo®	General	General	General	General

Applicants interested in what the terms "experimental," "provisional," and "general" mean relative to a sewage system's status should review sections 12 VAC 5-610-441 through 12 VAC 5-610-444 of the *Regulations*.